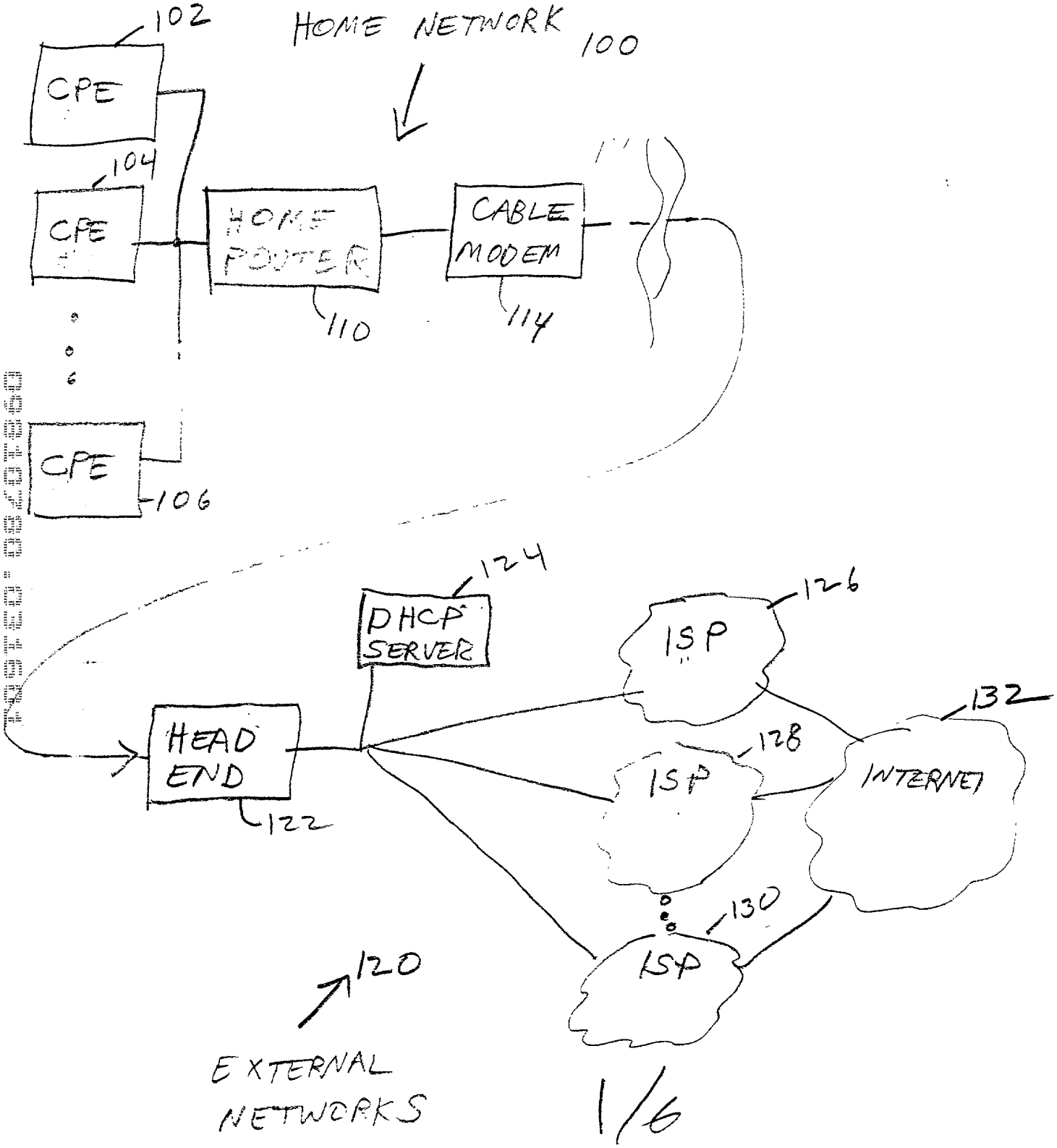
2001-0153
(Fisher)

FIG 1a



HOME ROUTER

FIG 1b

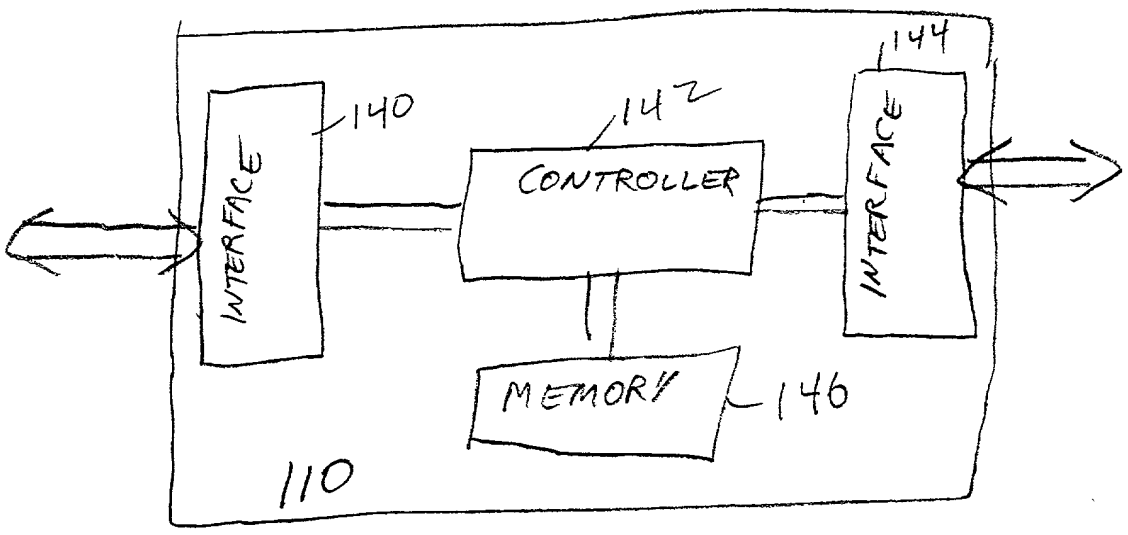
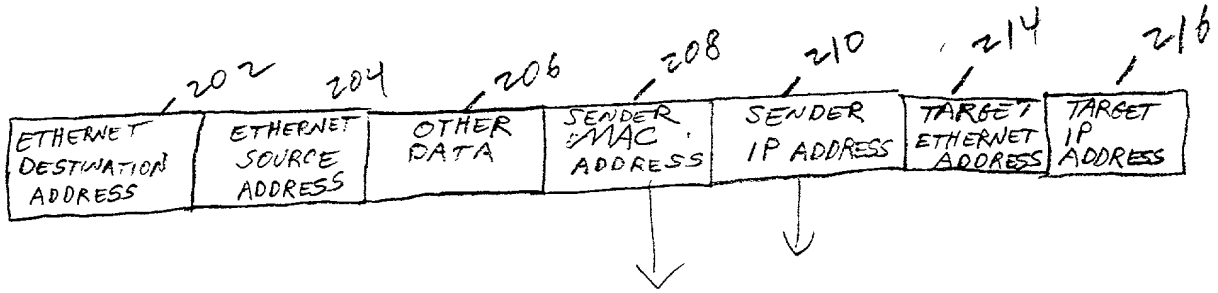


FIG. 2

ARP PACKET 200



IP DATA PACKET FIG. 3

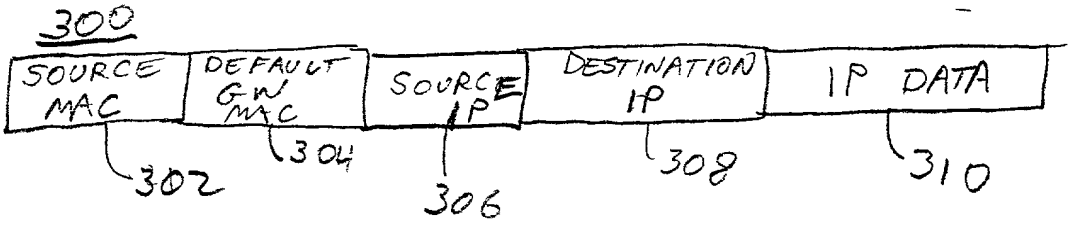


FIG 4

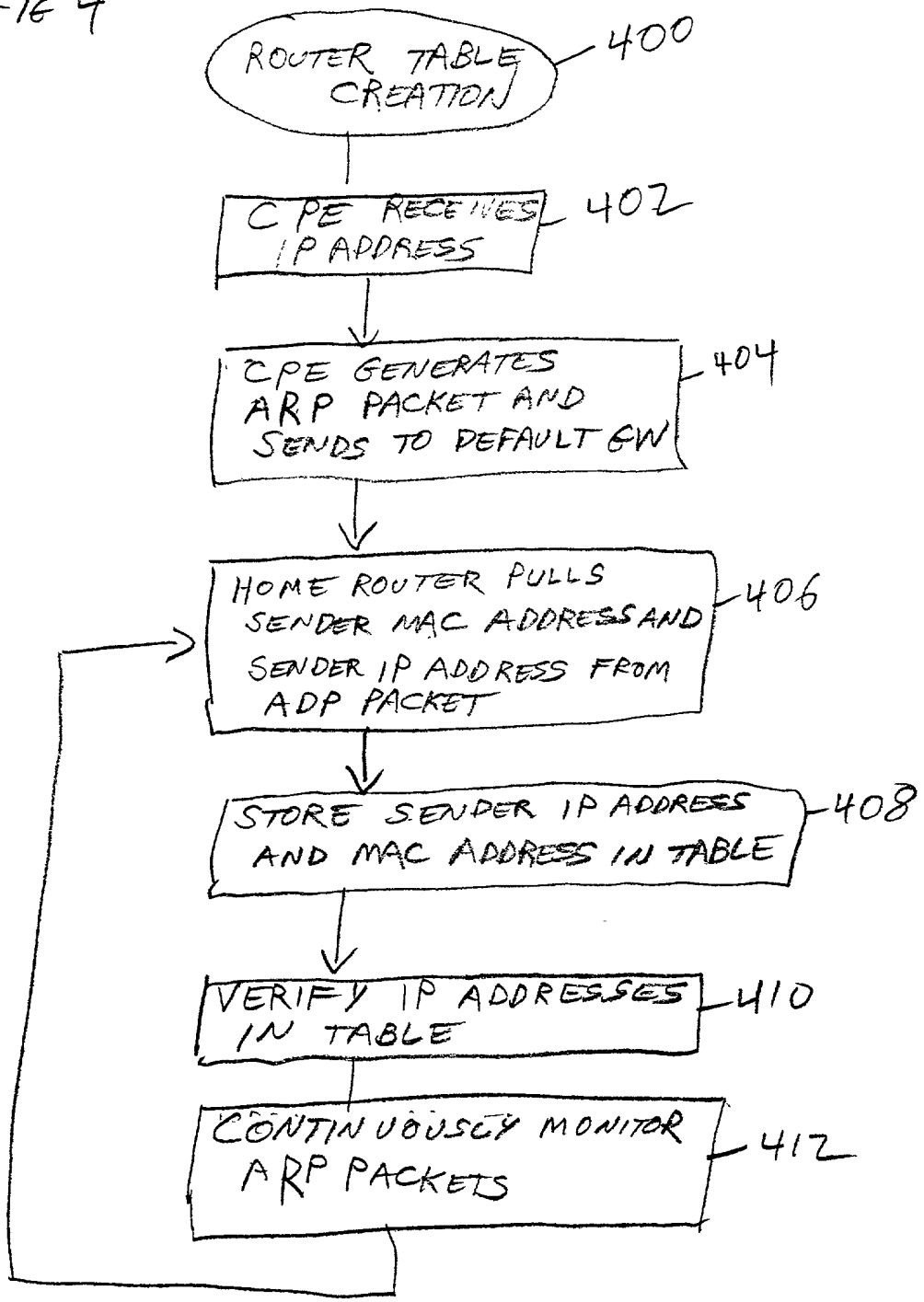

ROUTER TABLE CREATION
400
CPE RECEIVES IP ADDRESS
402
CPE GENERATES ARP PACKET AND SENDS TO DEFAULT GW
404
HOME ROUTER PULLS SENDER MAC ADDRESS AND SENDER IP ADDRESS FROM ADP PACKET
406
STORE SENDER IP ADDRESS AND MAC ADDRESS IN TABLE
408
VERIFY IP ADDRESSES IN TABLE
410
CONTINUOUSLY MONITOR ARP PACKETS
412

FIG 5

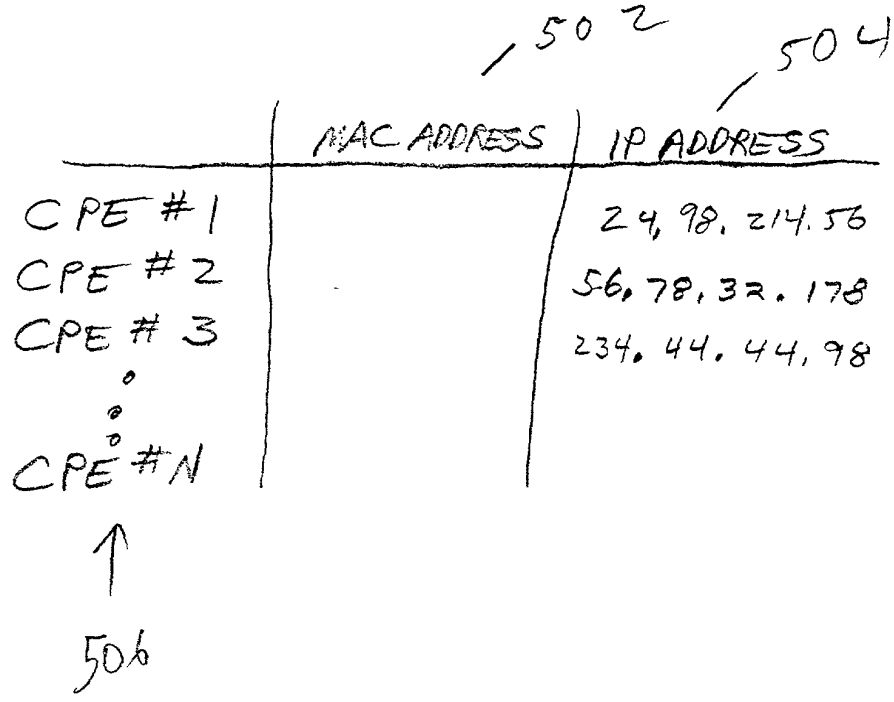
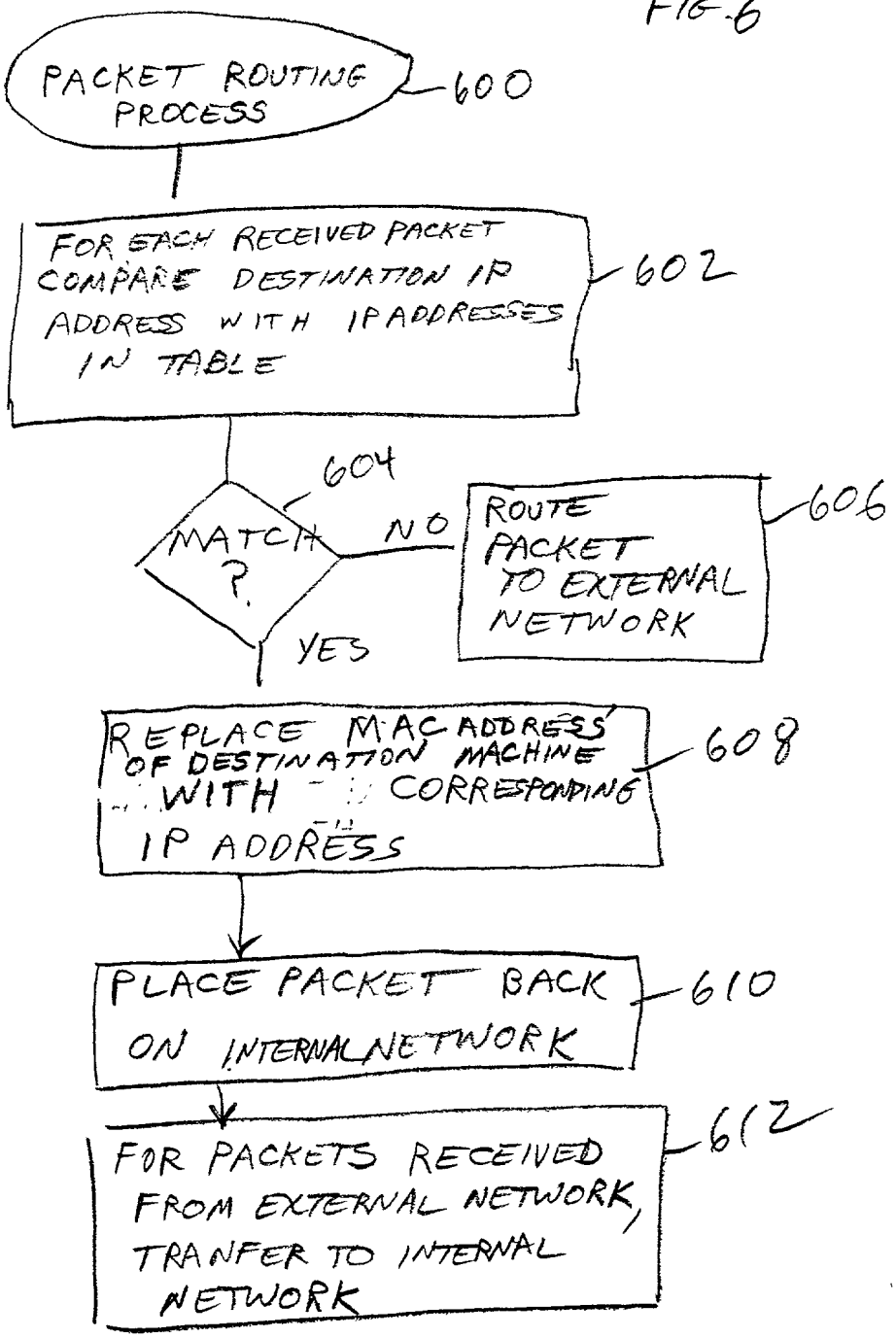

502
504
MAC ADDRESS
IP ADDRESS
CPE #1
CPE #2
CPE #3
CPE #N
24, 98, 214, 56
56, 78, 32, 178
234, 44, 44, 98
506
500

FIG-6


PACKET ROUTING PROCESS
600
FOR EACH RECEIVED PACKET COMPARE DESTINATION IP ADDRESS WITH IP ADDRESSES IN TABLE
602
604
MATCH ?
NO
ROUTE PACKET TO EXTERNAL NETWORK
606
YES
REPLACE MAC ADDRESS OF DESTINATION MACHINE WITH CORRESPONDING IP ADDRESS
608
PLACE PACKET BACK ON INTERNAL NETWORK
610
FOR PACKETS RECEIVED FROM EXTERNAL NETWORK, TRANFER TO INTERNAL NETWORK
612